

WHAT IS CLAIMED IS:

1. A method for producing metallic iron, in which after a mixture including a carbonaceous reducing agent and iron oxide is fed onto a moving hearth of a moving hearth reducing-melting furnace and is then heated so that the iron oxide is reduced and melted, metallic iron to be obtained is cooled and is then discharged outside the furnace for recovery, the method comprising: prior to the feed of the mixture, bedding a granular hearth material on the moving hearth for forming a layered renewable hearth which is renewable; removing part or the entirety of the renewable hearth, which is degraded during operation, and then newly feeding the hearth material for newly forming a renewable hearth; leveling the surface of the newly formed hearth; and subsequently feeding the mixture for producing the metallic iron.

2. A method according to Claim 1, wherein the degradation comprises solidification of the renewable hearth.

3. A method for producing metallic iron, in which after a mixture including a carbonaceous reducing agent and iron oxide is fed onto a hearth of a moving hearth reducing-melting furnace and is then heated so that the iron oxide is

reduced and melted, metallic iron to be obtained is cooled and is then discharged outside the furnace for recovery, the method comprising: prior to the feed of the mixture, bedding a hearth material on the hearth for forming a layered 5 renewable hearth which is renewable; feeding the hearth material on the surface of the renewable hearth which is degraded during operation so as to form a new surface of the hearth; leveling the new surface of the hearth; and subsequently feeding the mixture for producing the metallic 10 iron.

4. A method according to Claim 3, wherein the hearth material is fed so as to fill a recess formed on the surface of the degraded renewable hearth.

15

5. A method according to one of Claims 1 to 3, wherein the leveling comprises moving the fed hearth material in the direction intersecting the moving direction of the moving hearth.

20

6. A method according to Claim 5, wherein metallic iron and/or slag remaining after discharge is discharged in the moving direction concomitant with the moving.

25 7. A method according to one of Claims 1 to 6, wherein

the thickness of the renewable hearth is adjusted.

8. A method according to one of Claims 1 to 7, wherein, after the renewable hearth is leveled, the hearth material 5 is further fed so as to complete the renewal prior to the feed of the mixture..

9. A method according to one of Claims 1 to 8, wherein the hearth material comprises a carbonaceous material.

10

10. A method according to one of Claims 1 to 8, wherein the hearth material comprises a high melting point material having corrosion resistance against produced slag.

15 11. A method according to Claim 10, wherein the high melting point material comprises an oxide containing alumina and/or magnesia or silicon carbide.

12. A method according to Claim 10 or 11, wherein the 20 hearth material further comprises a carbonaceous material.

13. A method according to one of Claims 9 to 12, wherein the hearth material further comprises a material which is to be used as a CaO source or an MgO source.

25

14. A method according to one of Claims 9 to 13, wherein the hearth material further comprises a sintering promoter.

15. A method according to one of Claims 1 to 14, wherein
5 the cooling is performed by supplying a coolant or the hearth material.

16. A method according to Claim 1, wherein, when the degraded renewable hearth is removed, the renewable hearth
10 is softened and is then removed.

17. A method according to one of Claims 1 to 16, wherein, before the feed of the mixture, an atmosphere-adjusting agent containing a powdered carbonaceous material is bedded
15 on the renewable hearth, which has been renewed, so as to form a layered structure, and subsequently the mixture is fed.

18. A method according to Claim 17, wherein the atmosphere-adjusting agent comprises a material which is to
20 be used as a CaO source or an MgO source.

19. A method according to Claim 17, wherein the hearth material is blended in the atmosphere-adjusting agent.

20. A method according to one of Claims 17 to 19, wherein
THE atmosphere-adjusting agent is fed in twice or more.

21. A method according to one of Claims 1 to 20, wherein
5 a layer containing a powdered carbonaceous material is
present between the moving hearth and the renewable hearth
or in each of a plurality of layers formed of the renewable
hearts.

10 22. A method according to one of Claims 1 to 21, wherein
the hearth material is compacted when the surface of the
hearth is leveled.